

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 349027P	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/CA2004/000943	International filing date (day/month/year) 25/06/2004	(Earliest) Priority Date (day/month/year) 27/06/2003
Applicant THE UNIVERSITY OF WESTERN ONTARIO		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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International application No.
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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-19,36-69

A bio-fuel cell system and a method of generating electricity with this system, wherein the bio-fuel cell system comprises chemolithotrophic microorganisms that oxidize a member of a redox couple, that is Fe(II)/Fe(III), in the presence of oxygen.

2. claims: claims 20-35

A bio-fuel cell system and a method of generating electricity with this system, wherein the bio-fuel cell system comprises chemolithotrophic microorganisms that oxidize a member of a redox couple in the presence of oxygen in an aqueous solution that contains substantially no iron.

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International Application No

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A. CLASSIFICATION OF SUBJECT MATTER
H01M8/16 H01M8/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 012, no. 130 (E-603), 21 April 1988 (1988-04-21) & JP. 62 256382 A (HIDEO TSUNODA), 9 November 1987 (1987-11-09)	1, 6, 7, 10-16, 61-64, 67, 68
Y	abstract	2-5, 17-19, 36-47, 50-58, 69
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

29 December 2005

Date of mailing of the international search report

16-02-2006

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International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 495 023 B1 (ZEIKUS GREGORY J ET AL) 17 December 2002 (2002-12-17)	2-5, 17-19, 36-47, 50-58,69 21,22
Y	figure 1 column 3, lines 35-44 column 5, lines 5-18 column 8, lines 43-61 column 9, lines 9-13 column 10, lines 15-22 table 5	
A	----- US 3 331 705 A (DAVIS JOHN B ET AL) 18 July 1967 (1967-07-18) example 2	4,5,37, 38
X	----- WO 01/04061 A (KOREA INSTITUTE OF SCIENCE AND TECHNOLOGY; KIM, BYUNGHONG; CHANG, INSE) 18 January 2001 (2001-01-18)	20, 23-30, 33-35
Y	page 1, lines 5-11 page 5, line 19 - page 6, line 8 page 6, line 30 - page 7, line 23 claims 1,4	21,22
A	----- US 6 214 088 B1 (KARAMANEV DIMITRE GUEORGUIEV ET AL) 10 April 2001 (2001-04-10) the whole document	1-19, 36-69
A	----- US 6 270 649 B1 (ZEIKUS JOSEPH G ET AL) 7 August 2001 (2001-08-07) the whole document	20-35

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Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 62256382	A	09-11-1987	NONE	
US 6495023	B1	17-12-2002	NONE	
US 3331705	A	18-07-1967	NONE	
WO 0104061	A	18-01-2001	AU 3333500 A	30-01-2001
			CA 2378558 A1	18-01-2001
			CN 1364146 A	14-08-2002
			EP 1232123 A1	21-08-2002
			JP 2004517437 T	10-06-2004
			KR 2001009031 A	05-02-2001
US 6214088	B1	10-04-2001	CA 2314803 A1	10-02-2001
US 6270649	B1	07-08-2001	NONE	